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10/599,095

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EXAMINER

PEPITONE, MICHAEL F

ART UNIT

PAPER NUMBER

1796

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/599,095 | <b>Applicant(s)</b><br>VAN DEN BOSCH ET AL. |  |
|                              | <b>Examiner</b><br>MICHAEL PEPITONE  | <b>Art Unit</b><br>1796                     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 14-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-31 is/are rejected.
- 7) ☒ Claim(s) 17-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/19/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: Replacement of decimal points with commas {numbers} listed on page 4, lines 16-19. Appropriate correction is required.

### ***Claim Objections***

Claims 17-19 are objected to because of the following informalities: Replacement of decimal points with commas, "100.000" should be "100,000". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 14-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935).

Regarding claims 14-19: Mitra *et al.* teaches a process of treating fluoroaluminosilicate glass with a silanol, wherein the process provides glass ionomer cements {dental filling} (8:11-18) having improved tensile strength (1:16-17; 2:1-8; 2:45-47). Mitra *et al.* teaches mixing the fluoroaluminosilicate glass with a silanol (2:9-35), wherein the silanol can be a polymeric ethylenically unsaturated silanol (3:24-33).

Mitra *et al.* does not teach a poly(dialkylsiloxane) having terminal hydroxyl groups as a polymeric ethylenically unsaturated silanol [Instant claim 14]. However, Evans *et al.* teaches silanol terminated vinyl containing polydiorganosiloxane (3:3-18) for treating fillers (1:12-25), wherein the organo groups are methyl {formula (I),  $R=R^1=R^2=\text{methyl}$ } (3:27-28) [instant claims 14-16]. Mitra *et al.* and Evans *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation of ethylenically unsaturated polymers having terminal silanol groups for surface treating fillers. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined silanol terminated vinyl containing polydiorganosiloxane {formula (I),  $R=R^1=R^2=\text{methyl}$ }, as taught by Evans *et al.* in the invention of Mitra *et al.*, and would have been motivated to do so since Evans *et al.* suggests that such polymers provide vinyl groups appended to a filler, wherein the vinyl groups are more accessible for participation in a polymer-filler cure matrix (3:63-4:1).

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{Evans *et al.* provides dynamic viscosities from about 80 to about 1000 centipoise at 25 °C, but does not provide kinematic viscosity data for Formula (I). However, based on the number of repeat units for a (1-30), b (0-50), and c (4-30) (3:17-22), the resulting molecular weight of the compound would have a viscosity within the range of about 1 to about 100,000 cSt at 25 °C [instant claims 17-19].}

Regarding claim 20: Mitra *et al.* teaches an aqueous acid solution and separating the treated fluoroaluminosilicate from the acid solution (2:13-35; 6:27-35).

Regarding claims 22-23: Mitra *et al.* teaches organic and inorganic acids [instant claims 22-23] (6:27-35; 7:53-8:2).

Regarding claim 24: Mitra *et al.* teaches a pH of 5 or less (6:48-53).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935), as applied to claim 20 above, when taken with Akahane *et al.* (5,063,257).

Regarding claim 21: Mitra *et al.* and Evans *et al.* renders the basic claimed process obvious [as set forth above with respect to claim 20]. Mitra *et al.* teaches 0.02 to 10 µm average particle diameters (2:50-65).

Akahane *et al.* (5,063,257) provides evidence for fluoroaluminosilicate particle diameter (3:14:17)

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935).

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Regarding claim 25: Mitra *et al.* teaches a process of treating fluoroaluminosilicate glass with a silanol, wherein the process provides glass ionomer cements {dental fillings} (8:11-18) having improved tensile strength (1:16-17; 2:1-8; 2:45-47). The glass ionomer cement made from the treated glass is mixed and clinically applied using conventional techniques (8:11-18). Mitra *et al.* teaches mixing the fluoroaluminosilicate glass with a silanol (2:9-35), wherein the silanol can be a polymeric ethylenically unsaturated silanol (3:24-33).

Mitra *et al.* does not teach a poly(dialkylsiloxane) having terminal hydroxyl groups as a polymeric ethylenically unsaturated silanol [Instant claim 25]. However, Evans *et al.* teaches silanol terminated vinyl containing polydiorganosiloxane (3:3-18) for treating fillers (1:12-25), wherein the organo groups are methyl {formula (I),  $R=R^1=R^2=\text{methyl}$ } (3:27-28) [instant claim 25]. Mitra *et al.* and Evans *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation of ethylenically unsaturated polymers having terminal silanol groups for surface treating fillers. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined silanol terminated vinyl containing polydiorganosiloxane {formula (I),  $R=R^1=R^2=\text{methyl}$ }, as taught by Evans *et al.* in the invention of Mitra *et al.*, and would have been motivated to do so since Evans *et al.* suggests that such polymers provide vinyl groups appended to a filler, wherein the vinyl groups are more accessible for participation in a polymer-filler cure matrix (3:63-4:1).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935).

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Regarding claim 26: Mitra *et al.* teaches a process of treating fluoroaluminosilicate glass with a silanol, wherein the process provides glass ionomer cements {dental fillings} (8:11-18) having improved tensile strength (1:16-17; 2:1-8; 2:45-47). The glass ionomer cement made from the treated glass is mixed and clinically applied using conventional techniques (8:11-18). Mitra *et al.* teaches mixing the fluoroaluminosilicate glass with a silanol (2:9-35), wherein the silanol can be a polymeric ethylenically unsaturated silanol (3:24-33).

Mitra *et al.* does not teach a poly(dialkylsiloxane) having terminal hydroxyl groups as a polymeric ethylenically unsaturated silanol [Instant claim 25]. However, Evans *et al.* teaches silanol terminated vinyl containing polydiorganosiloxane (3:3-18) for treating fillers (1:12-25), wherein the organo groups are methyl {formula (I),  $R=R^1=R^2=\text{methyl}$ } (3:27-28) [instant claim 25]. Mitra *et al.* and Evans *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation of ethylenically unsaturated polymers having terminal silanol groups for surface treating fillers. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined silanol terminated vinyl containing polydiorganosiloxane {formula (I),  $R=R^1=R^2=\text{methyl}$ }, as taught by Evans *et al.* in the invention of Mitra *et al.*, and would have been motivated to do so since Evans *et al.* suggests that such polymers provide vinyl groups appended to a filler, wherein the vinyl groups are more accessible for participation in a polymer-filler cure matrix (3:63-4:1).

Mitra *et al.* does not teach forming a surface of a dental filling by filling a dental cavity with a glass ionomer cement composition and treating the surface. However, a prima facie case of obviousness exists where changes in the sequence of adding ingredients derived from the prior art process steps. *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959). See also *In re Burhans*, 154

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F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.) [See MPEP 2144.04].

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935), as applied to claim 26 above, in further view of Bui *et al.* (US 2002/0129736).

Regarding claim 27: Mitra *et al.* and Evans *et al.* renders the basic claimed process obvious [as set forth above with respect to claim 26].

Mitra *et al.* does not teach thermal curing of the filling [instant claim 27]. However, Bui *et al.* teaches a FAS glass ionomer cement composition (§ 8, 14) that is cured thermally [instant claim 27] (§ 54). Mitra *et al.* and Bui *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation of FAS glass ionomer cement compositions. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined thermal curing, as taught by Bui *et al.* in the invention of Mitra *et al.*, and would have been motivated to do so since Bui *et al.* suggests that thermal curing is beneficial for initiating polymerizations outside of the oral environment {press molding} (§ 54).

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935) and Bui *et al.* (US 2002/0129736), as applied to claim 27 above, in further view of Mitra (US 2003/0087986).



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Regarding claim 28: Mitra *et al.*, Evans *et al.*, and Bui *et al.* renders the basic claimed process obvious [as set forth above with respect to claim 27].

Mitra *et al.* does not teach curing prior to the treating step [instant claim 28]. However, Mitra ('896) teaches FAS glass ionomer cement compositions (§ 7-13) that are provided as preformed articles [instant claim 28] (§ 31). Mitra *et al.* and Mitra ('896) are analogous art because they are concerned with a similar technical difficulty, namely the preparation of FAS glass ionomer cement compositions. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined preformed cured articles, as taught by Mitra ('896) in the invention of Mitra *et al.*, and would have been motivated to do so since Mitra ('896) suggests that such preformed articles can be ground or otherwise formed into a custom fitted shape by the dentist (§ 31).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935).

Regarding claim 29: Mitra *et al.* teaches a glass ionomer cement composition (1:12-25) comprising a silanol treated fluoroaluminosilicate glass (1:16-17; 2:1-8; 2:45-47) {used as dental fillings (bone cement)} (8:11-18). Mitra *et al.* teaches mixing the fluoroaluminosilicate glass with a silanol (2:9-35), wherein the silanol can be a polymeric ethylenically unsaturated silanol (3:24-33).

Mitra *et al.* does not teach a poly(dialkylsiloxane) having terminal hydroxyl groups as a polymeric ethylenically unsaturated silanol [Instant claim 29]. However, Evans *et al.* teaches silanol terminated vinyl containing polydiorganosiloxane (3:3-18) for treating fillers (1:12-25),

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wherein the organo groups are methyl {formula (I),  $R=R^1=R^2=\text{methyl}$ } (3:27-28) [instant claim 29]. Mitra *et al.* and Evans *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation of ethylenically unsaturated polymers having terminal silanol groups for surface treating fillers. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined silanol terminated vinyl containing polydiorganosiloxane {formula (I),  $R=R^1=R^2=\text{methyl}$ }, as taught by Evans *et al.* in the invention of Mitra *et al.*, and would have been motivated to do so since Evans *et al.* suggests that such polymers provide vinyl groups appended to a filler, wherein the vinyl groups are more accessible for participation in a polymer-filler cure matrix (3:63-4:1).

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra *et al.* (US 5,453,456) in view of Evans *et al.* (US 5,674,935).

Regarding claims 30-31: Mitra *et al.* teaches a glass ionomer cement composition (1:12-25) comprising a silanol treated fluoroaluminosilicate glass (1:16-17; 2:1-8; 2:45-47) {used as dental fillings (formed object implantable in bone)} [instant claim 31] (8:11-18). Mitra *et al.* teaches mixing the fluoroaluminosilicate glass with a silanol (2:9-35), wherein the silanol can be a polymeric ethylenically unsaturated silanol (3:24-33).

Mitra *et al.* does not teach a poly(dialkylsiloxane) having terminal hydroxyl groups as a polymeric ethylenically unsaturated silanol [Instant claim 30]. However, Evans *et al.* teaches silanol terminated vinyl containing polydiorganosiloxane (3:3-18) for treating fillers (1:12-25), wherein the organo groups are methyl {formula (I),  $R=R^1=R^2=\text{methyl}$ } (3:27-28) [instant claim 30]. Mitra *et al.* and Evans *et al.* are analogous art because they are concerned with a similar

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technical difficulty, namely the preparation of ethylenically unsaturated polymers having terminal silanol groups for surface treating fillers. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined silanol terminated vinyl containing polydiorganosiloxane {formula (I),  $R=R^1=R^2=\text{methyl}$ }, as taught by Evans *et al.* in the invention of Mitra *et al.*, and would have been motivated to do so since Evans *et al.* suggests that such polymers provide vinyl groups appended to a filler, wherein the vinyl groups are more accessible for participation in a polymer-filler cure matrix (3:63-4:1).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 14, 20, and 29-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, and 11-14 of copending Application No. 10/559900. Although the conflicting claims are not identical, they

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are not patentably distinct from each other because the claimed process of preparing the FAS glass and poly(diaklysiloxane) composition, as well as the bone cement and dental filling compositions overlap in scope.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. See attached form PTO-892.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PEPITONE whose telephone number is (571)270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./  
Supervisory Patent Examiner, Art Unit 1796

MFP  
9-October-08